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The natural benthic assemblages differed with changes in the amount of sediment movement or substrate stability. Many animals characterized the relatively stable submarine ridges but few inhabited the unstable terrace slopes of the submarine canyon in Monterey Bay, California (Monterey Canyon); even fewer animals were found in channeled areas.

Dredging in the channel areas removed 60 percent of the original population of bottom animals. After 1.5 years, the number of individuals was low but the species diversity and evenness indexes were higher than before dredging.

Disposal of dredged material near the Monterey Canyon head at Moss Landing, California, removed 60 percent of the individuals. After 1.5 years, the number of individuals remained low but the species diversity and evenness indexes were higher than before disposal. Organisms adapted to unstable bottom conditions survive burial better than others.

The ultimate recovery of a disturbed area depends upon the timing of the action in relation to the reproductive cycles and distributive abilities of the benthic organisms in the area. In Monterey Bay, spring and fall are the most active spawning seasons for many benthic animals; dredging or dumping should be avoided during these seasons.

Underwater disposal of dredged material should be made in unstable bottom areas if possible.

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